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NOTES ON GEOGRAPHIC DISTRIBUTION

Insecta, Lepidoptera, Sphingidae, *Cocytius antaeus* Drury: First record for Isla del Coco, Costa Rica and notes on its hostplant

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Cocos Island (*Isla del Coco*) is a Costa Rican protected insular territory located in the Tropical Eastern Pacific (Figure 1). The area was declared National Park in 1978 and proclaimed World Natural Heritage Site by UNESCO in 1997 and Wetland of International Importance under the Ramsar Convention in 1998. It is a young oceanic island, in full process of modeling its landscape and forming its biota (Montoya 1991; 2001). The natural arrival and establishment of new organisms in isolated and protected oceanic islands are events that, once identified, must be followed up to understand their behavior and to justify management procedures for proper conservation or eradication.

Figure 1. Cocos Island (Isla del Coco) is a Costa Rican protected insular territory located in the Tropical Eastern Pacific.

On May 4, 2007, at Wafer Bay (5°32'57" N and 86°59'17" W), park ranger Guillermo Blanco captured the digital image of a green sphingid larva on *Annona glabra* (Annonaceae), its apparent hostplant (Figure 2). This photograph was identified by lepidopterist Eduardo Chumpitasi, in San Jose, Costa Rica, as *Cocytius antaeus* (Drury, 1773) (Sphingidae, Sphinginae). Copy of the digital image is deposited in the database of the National Museum of Costa Rica (Natural History Department) under No. MNCR-Z 3760.

It is the first record of *C. antaeus* in the island. Before this new record, four other sphingid species were known to occur in the island*: Agrius cingulatus, Pachylia ficus, Erinnyis obscura* and *Xylophanes tersa* (Brown 1990; Hogue & Miller 1981).

Cocytius antaeus has a wide geographic distribution in tropical and subtropical America in lowlands, from southern United States, Mexico, Central America and Caribbean to South America and southern Brazil and Uruguay. The only eastern Pacific islands with confirmed records of *C. antaeus* are the Galapagos archipelago, where *Annona cherimola* is its larval hostplant (Roque-Albelo & Landry 2002).

Other species of *Annona* have been indicated as hostplants of this sphingid moth. Larvae usually eat the leaves and shoots while the adults imbibe the flower nectar of the same plant (Peña & Bennett 1995). At Cocos Island, the only native *Annona* is *A. glabra*. It was found originally in salty swamp areas close to the seashore, where tides possibly helped dispersion (Pablo Madríz, pers. comm. Nov 18, 2007). Nowadays, plants are found inland, 200m above sea level, probably because hogs disperse the seeds. These animals were introduced to the island over two centuries ago.

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Figure 2. Green sphingid larva on *Annona glabra* (Annonaceae) MNCR-Z3760. Photo: Guillermo Blanco.

There is also an old record of *A. cherimola* around the vicinity of Wafer Bay (Steward 1912), no doubt from human introduction, but it has not been found in recent surveys (Trusty et al. 2006). *Annona muricata*, another domestic species, is of recent introduction near the human settlement at Wafer Bay, with productive trees and is now found farther inland, also probably after dispersion by feral hogs (Pablo Madríz pers. comm. 18 November 2007).

The probable hostplant for *C. antaeus* in the island thus is *Annona glabra,* the autochthonous species that is known to be hostplant in other Neotropical areas. The occurrence of *C. antaeus* in Cocos Islands seems to be recent, because it is not included in the reports of more than 20 entomological expeditions carried out since 1891 (Hogue & Miller 1981, Brown 1990 and INBio database).

The arrival and natural establishment of new organisms in oceanic islands, especially isolated as the Cocos Island, are rare events but may represent the beginning of a colonization process, as indicated by Roque-Albelo (1999) in the Galapagos Islands. The colonization of oceanic islands is usually dependent of several factors such as the dispersion ability of the species, food availability (hostplants) and the ability of the species to reproduce. The presence of *Cocytius antaeus* in Cocos Island can be explained by some or all of the above factors.

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